organic substances" (p. 265) Dr. Cohen has made a most praiseworthy attempt to systematise the analysis of organic substances. This part of the book might advantageously have been expanded (if necessary at the expense of the appendix), when the futility of the closing hint[1] might have been avoided.

The old method for the preparation of diethyl malonate—the *pons asinorum* of the organic chemist—is still given, but a better yield is obtained by the method of Noyes (*Journal* of the American Chemical Society, 18, 1105, 1896); succinic acid melts at 185°, not 180°; the conversion of citraconic into mesaconic acid (p. 112) is due to Fittig, not to Jacobson; methyl oxalate (Prep. 24) is not indexed; and the preparation of kreatinine might advantageously have been omitted.

We must, however, congratulate Dr. Cohen on having produced the best elementary book, in the English language, on practical organic chemistry, and we have found that our students use the book with great confidence and are perfectly able to prepare any of the substances from the descriptions. The book, which is well printed and free from typographical errors, should rank with the similar works of Ludwig Gattermann in German, and of Dupont and Freundler in French.

W. T. L.

OUR BOOK SHELF.

Description of the Human Spines, showing Numerical Variation, in the Warren Museum of the Harvard Medical School. By T. Dwight, M.D., LL.D. (Memoirs of the Boston Society of Natural History). Vol. v. No. 7. Pp. 75. (Boston, U.S.A., 1901.)

THIS memoir is for the greater part a careful description, with elaborate tabulation and adequate illustration, of forty-five anomalous human back-bones which, with one exception, were obtained during many years spent by the author in the dissecting-room of the Harvard Medical School. In the introductory portion of the work the author discusses Rosenberg's methods and well-known theory of "concomitant variations," based on the appreciation of a tendency of the cervical and lumbar regions of the column to absorb into themselves the thoracic, with change progressive and retrogressive at the opposite ends of this. Accepting, without proof, the theory that the human ilium enters into relation with different vertebræ during development, the author passes on to the consideration of irregular segmentation, and a discussion of the views of Baur, Bateson and others on inter- and ex-calation, deferring the latter author's theory of "homœosis" for consideration in the body of the work. He finally denies the existence of a precise number of lumbar vertebræ, and finds refuge in Welcker's theory of the *vertebra fulcralis*. With this as a determining factor he largely deals, and the most interesting portion of his memoir is that in which he shows it to be the twenty-fourth vertebra in each of seven examples lacking one of the præsacral series. He classifies his specimens into classes, and clearly, systematically formulates the individual spines of each, and deals in some cases with correlated modification of the spinal nerves. Arguing that the "essential part of the office of the spine is to form the median support of the trunk," he deduces what he terms a "vitalistic conception," viz., that parts in corresponding situations exhibit a tendency to develop in a corresponding manner; and in finally discussing Rosenberg's view, he remarks that its success has been largely due to the fact that "it fitted in so perfectly with the doctrine of descent by gradual modifications," and gives as his opinion that, "unfortunately for science," it has "become too much the custom to make everything square with this."

The memoir as a whole is laborious, but accurate and systematic, and will be of great use to the working anthropotomist. There is appended a description of some incomplete specimens of interest in the author's collection, and we would remind him that among the quadrupedal mammals co-ossification of the atlas vertebra with the skull is at times found to be an effect of dislocation, and would recommend to his consideration the recent description by Broom of an Echidna's spine having eight cervical vertebræ, and his discovery that in some marsupials the fourth lumbar and anterior caudal vertebræ bear in the young state free ribs.

Where Black Rules White: A Journey across and about Hayti. By H. Prichard. Pp. 288. (Westminster: Archibald Constable and Co., Ltd., 1900.) 12*s*.

MR. PRICHARD visited Haïti in the year 1899 as a special correspondent of the *Daily Express*; and in the volume under notice we have his impressions and experiences described, with anecdotes and illustrations. He made a short trip into Santo Domingo, to which he devotes a chapter, but otherwise the book is concerned with the people, places and affairs of the part of the island governed by the Haïti Republic. Referring to the people of the Dominican State, Mr. Prichard remarks: "They are not nearly so likeable as the Haytian peasantry, and hospitality does not flourish in the same degree as on the western side of the border. On the other hand, the Government of San Domingo is less jealous of foreign influence. The Dominicans speak Spanish, and have preserved the purity of their language to a far greater degree than can be said of the Haytians, whose French has degenerated into a Creole patois so corrupt that it can with difficulty be understood by outsiders."

From a scientific point of view, the most important statements made relate to Voudou worship and sacrifice. The author says that the people of Haïti are practically under the control of Papalois or Voudou priests, otherwise Haïtian witch-doctors and medicine-men; and he brings charges against them of murders and human sacrifices which the Government of the Republic appears unable to prevent. As to the ceremonies connected with the worship of Voudou, he remarks: "There are said to be two sects of Vaudoux: one which sacrifices only fruits, white cocks and white goats to the serpent-god; the other, that sinister cult above referred to, whose lesser ceremonies call for the blood of a black goat, but whose advanced orgies cannot be fully carried out without the sacrifice of the goat without horns—the human child." Miss Kingsley touched upon this subject in her "West African Studies."

Mr. Prichard made a special point while in Haïti of obtaining information as to Voudou ceremonies and sacrifices, and in some cases was able to obtain direct knowledge. He gives an account of personal observations of some of the rites, which should be of interest to ethnologists.

Untersuchungen zur Blutgerinnung. By Dr. Ernst Schwalbe. Pp. 89. (Brunswick: Vieweg, 1900.)

DR. ERNST SCHWALBE herein summarises the previous researches on the chemistry and morphology of the coagulation of the blood, and adds some new observations of his own.

He has employed Reye's method of separating

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[1] ["2, *Solids.*—A mixture of solids may be separated either by use of a suitable solvent which will dissolve one of the constituents more readily than the other, or by means of one of the reagents described above" p. 272)].

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fibrinogen from blood plasma by fractional precipitation with ammonium sulphate, and has studied the characters of the soluble fibrino-globulin of Hammarsten, which is present in solution after the fibrinogen solution has been clotted or coagulated by heat. He finds that fibrinogen is not filtered by pressure through a Chamberlain filter, while the other proteids of plasma, including fibrino-globulin, are driven through. He has also determined the heat coagulation temperature of fibrino-globulin.

Dr. Schwalbe has studied the clotting of freshly drawn blood, the blood being suspended in microscopical sections of elder-pith and protected from drying or contact with the cover glass. He concludes that blood platelets arise by the breaking down of red corpuscles, and that agents, such as calcium salts, which promote clotting do so by accelerating the breaking down of the red corpuscles. The original observations are scarcely of sufficient importance to warrant their publication in the form of a separate monograph.

A Manual of Elementary Science. A course of work in Physics, Chemistry and Astronomy, for Queen's scholarship candidates. By R. A. Gregory, F.R.A.S., and A. T. Simmons, B.Sc. Pp. viii + 429. (London: Macmillan and Co., Ltd, 1901.) Price 3*s.* 6d.

OF the three parts into which this book is divided, those dealing with physics and chemistry are along familiar lines, but it may be stated that they are treated with the thoroughness and attention to practical details which the authors have accustomed us to expect. It is to the third part that teachers will turn with the greatest interest, for the reason that an effort is made to extend laboratory methods in the teaching of astronomy. Hitherto, with the possible exception of two American books, there has been no guide to this class of work suitable for elementary students who can only give a comparatively small amount of time to the subject. The practical exercises described comprise the illustration of astronomical phenomena by the use of simple apparatus; suggestions for observations of the heavenly bodies themselves, including measurements of altitude, &c., with home-made instruments; the graphical representation of the paths of the sun, moon and planets with the aid of an almanac; and easy numerical exercises. Those who have endeavoured to teach chiefly by the observation of the heavens will appreciate the provision made for instructive work when outdoor observation is not possible or convenient. The course laid down is certainly a step in the right direction, but it would be too much to say that it could not be improved. The use of the globes, for instance, might have been introduced with advantage.

It may be noted that Achernar, by some slip, has been wrongly included in the list of bright stars visible in England (p. 328).

The book throughout is admirably illustrated, many of the diagrams being original. A number of useful exercises are appended to each chapter.

The Mind of the Century. By various authors. Pp. 141. (London: T. Fisher Unwin, no date.) 2*s.*

THE essays in this volume are characteristic aspects of progress during the nineteenth century, seen from sixteen different points of view; they originally appeared in the *Daily Chronicle*, and it may perhaps be doubted whether any useful purpose is served by reprinting them. A glance at the lines of intellectual development may be sufficient for a daily newspaper, but it is scarcely accurate to describe a very general view as a representation of "The Mind of the Century." It will be sufficient to say that Prof. Tilden's article on chemistry occupies five pages, and he would probably be the first to disclaim any desire to have it regarded as more than a very slight sketch of a few lines of progress. Dr. H. J. Campbell writes on medicine, Mr. Edward Clodd on natural science (in which he includes astronomy), and Mr. W. A. Price on applied science, the whole of the articles on scientific subjects occupying thirty-three pages. To what extent the minds of men of science—both pure and applied—can be faithfully reflected within these limits we leave our readers to judge. The book has no index.

Morison's Chronicle of the Year's News of 1900. Compiled by G. Eyre-Todd. Pp. 446. (Glasgow: Morison Brothers, 1901.) 3*s.* 6*d.* net.

THIS is a diary of events and news of the year 1900, and it may be taken as a convenient index to the subjects which occupied public attention in the newspaper press during that year. It is in no sense a record of scientific thought and work, and the compiler has apparently made no attempt to form an accurate estimate of the relative standing of learned societies, or to apportion space according to the value of their proceedings.

In the index, under societies, we notice the Royal Society of Edinburgh (the reference being to a single meeting in 1900), but not the Royal Society of London; a meeting of the Scottish Meteorological Society is recorded, but none of the Royal Meteorological Society; the Society of Chemical Industry appears, but not the Chemical Society, or the Physical, or the Astronomical, or the Linnean, Zoological and many others. So far as science is concerned, therefore, a reader of the diary would prevent himself from being disappointed if he assumed that the volume took no account of the scientific news of 1900. We must, however, be charitable, for, after all, the news and events recorded in the volume are, to the general public, of more interest and value than many contributions to natural knowledge.

Imitation, or the Mimetic Force in Nature and Human Nature. By Richard Steel. Pp. xii + 197. (London: Simpkin, Marshall and Co., Ltd., 1900.)

THE canon of affirmative reasoning, which may be said to form the text of this book, is expressed by the author as follows:—"That which is true of a thing is probably true of its like; the degree of probability depending upon the extent and thoroughness of the resemblance." This principle is applied to the reasoning employed in connection with such subjects as habit and instinct, psychology, physics and biology, and other branches of intellectual inquiry in the natural and spiritual worlds. It is the expression of the theory of imitation, which the author propounds "as a fundamental influence in human affairs and in the natural universe generally." Many general facts of natural history lend themselves easily to this idea, and use is made of them. How the author does this, and shows that even wave motion is "essentially mimetic or imitative," can be better read than described.

In Nature's Workshop. By Grant Allen. With 100 illustrations by Frederick Enock. Pp. 240. (London: George Newnes, Ltd., 1901.) Price 3*s.* 6*d.*

IN reading this book one cannot fail to notice a considerable resemblance between Mr. Grant Allen's manner of treating his subject and that adopted by the late Dr. Taylor in his "Sagacity and Morality of Plants." But while the latter work consisted only of examples taken from the vegetable kingdom, here the animal kingdom, and especially the insect world, receives a large share of attention. Thus there are chapters on "sextons and scavengers," dealing with burying beetles; "false pretences" and "masquerades and disguises," dealing with warning colours, mimicry and such matters; "animal and vegetable hedgehogs," dealing with spiny fishes, insects, cactuses, lizards and beetles; "plants that go to sleep." The book should prove delightful reading to young people and others who can take an interest in natural history treated in an unscientific and popular

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